# 2015 Small Business Outreach and Industry Day



03 March 2015

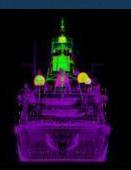
### Naval Surface Warfare Center, Carderock Division



Science and Technology

Research and Development

Commanding Officer, NSWCCD



Design and Requirements



Acquisition and Construction



Fleet Training and Simulation



Modernization and Lifecycle Support

Technical Director



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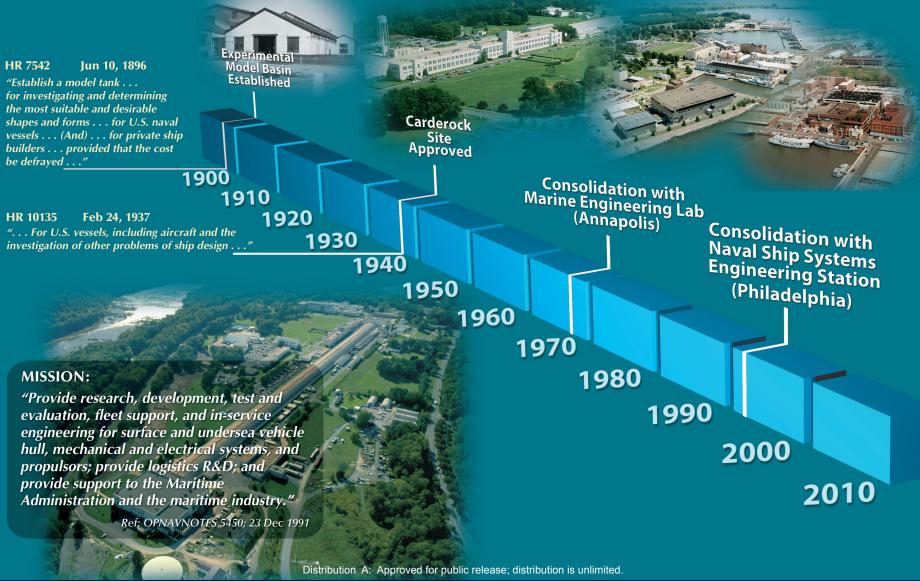
### **Our Mission**



- We are the Navy's principal provider of Hull, Mechanical and Electrical expertise
- We deliver technical solutions in Naval Architecture and Marine Engineering to develop, build and maintain a dominant, ready and affordable fleet
- We provide people, facilities and tools across the full spectrum of the acquisition lifecycle

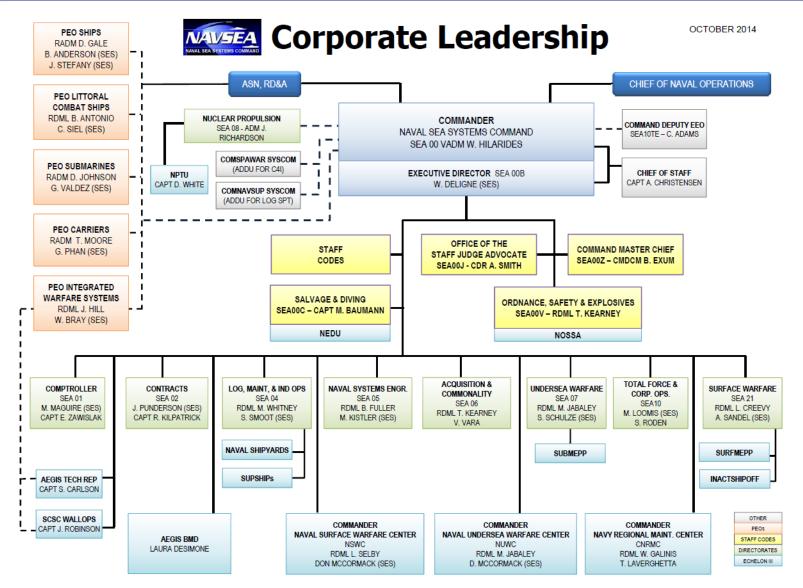
We do things for the war fighter that industry can't, won't, or shouldn't do

# Carderock Division A Long History of Supporting Maritime RDT&E



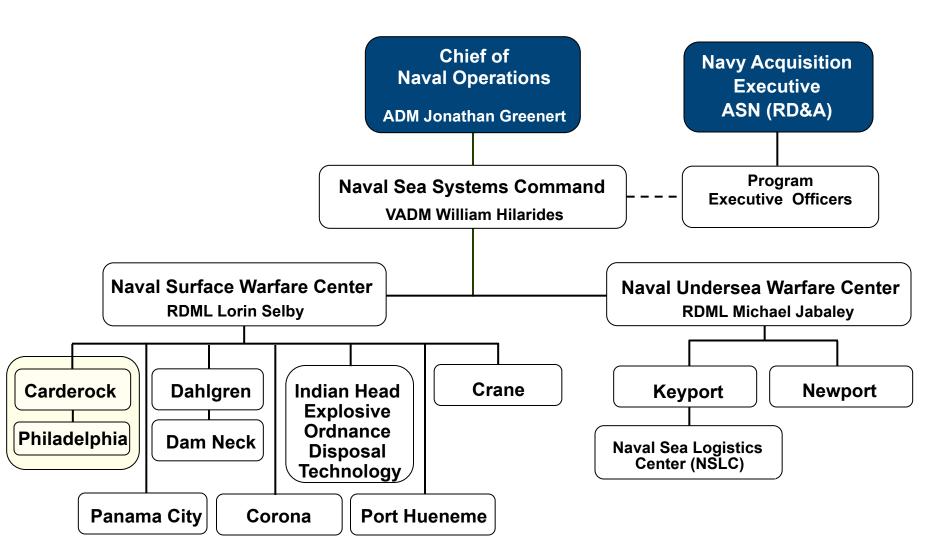
### Organizational Hierarchy





### **Our Chain of Command**





### CARDEROCK DIVISION SITES



Southeast Alaska Acoustic Measurement Facility (SEAFAC) KETCHIKAN • ALASKA



Puget Sound Detachment at Naval Submarine Base Bangor BANGOR+WASHINGTON





Acoustic Research Detachment



Naval Ship Systems Engineering Station
PHILADELPHIA • PENNSYLVANIA



Carderock Division HEADQUARTERS
WEST BETHESDA • MARYLAND



Norfolk Detachment Combatant Craft Division NORFOLK • VIRGINIA

3,520 Employees \$1.4B Organization

66% Scientists & Engineers 34% Other

04 /0 Othici

Data as of: 30 Sep 2014

Memphis Detachment Dr. Wm. B. Morgan Large Cavitation Channel MEMPHIS • TENNESSEE



South Florida Test Facility

DANIA • FLORIDA



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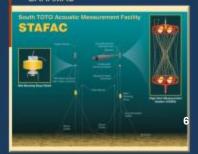
Acoustic Trails Detachment

CAPE CANAVERAL

FLORIDA

South TOTO Acoustic Measurement Facility

BAHAMAS



### Naval Surface Warfare Center Survivability, Structures, Materials and Environmental

### **Department**



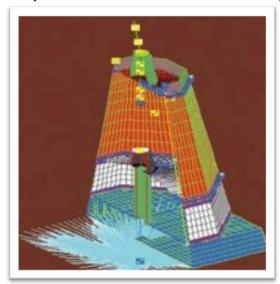
- Survivability and recoverability expertise to provide combat-ready platforms able to sustain damage and continue the mission while fighting damaged
- Structural (including composites) design, analysis and physical scale modeling to ensure design criteria will meet operational and mission needs
- Metallic and non-metallic alloy selection, processing and repair techniques, corrosion mitigation to ensure cost-effective maintenance spanning the full operational life-cycle

 Regulatory compliance and pollution prevention, solid and liquid waste management and treatment, hazardous waste management and disposal,

and system safety

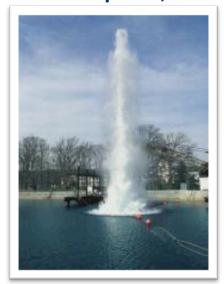


**Hull Pressure Testing** 



Finite Element Analysis

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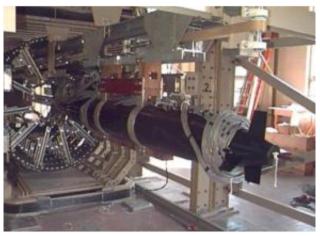
**Explosives Test Pond** 

## Signatures Department



- Provide an advantage for the Navy's ships, submarines, craft, and vehicles in acoustics, electro-magnetics, radar, infra-red, and emerging threat signatures
- Conduct modeling & simulation and scale model & full scale testing using unique world class facilities
- Large, diverse and talented staff of scientists and engineers. Full spectrum of technical support from requirements setting and R&D through acquisition support and direct fleet support







**Multi Band Radar** 

**Magnetic Fields Lab** 

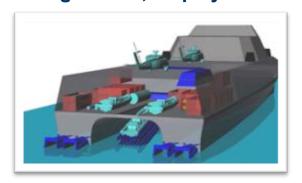
Buoyant Vehicle Acoustic Test

#### **Naval Surface Warfare Center**

### **Naval Architecture** and Engineering Department



Naval Architecture of Ships, Submarines, Boats & Craft, and other Naval Systems - early concept/design development and trade-off studies through cost analysis, detailed hydrodynamic and propulsor design, maneuvering and ship control, model testing, internal arrangements, ship systems integration, full-scale trials and operational support.







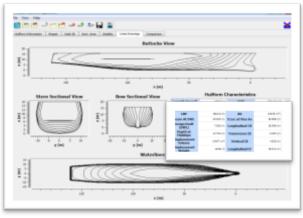
**Concept development** and early design



Small scale test and evaluation



Full scale tests, evaluation and trials







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## Machinery Research and Engineering

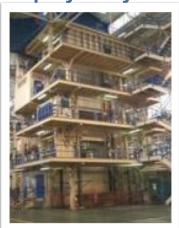
## Engineering Department



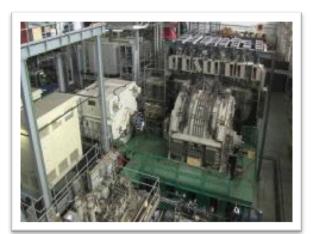
- Provides full spectrum support for Science & Technology, Research & Development and Testing & Evaluation
- Provides Life Cycle Engineering Support
- Operates Labs and Test Facilities
  - Propulsion and Power Systems
  - Auxiliary and Life Support Systems
  - Machinery Network, Sensors, and Data Systems
  - Cargo, Weapons Handling and Hull Systems
  - Undersea Vehicle Sail and Deployed Systems



DDG 51
Land Based Engineering Site



**Aircraft Carrier Elevator Test Site** 



DDG 1000 Land Based Test Site

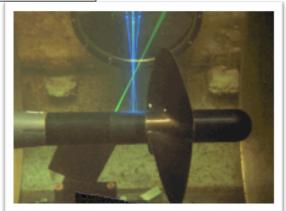
### **NSWCCD Summary**

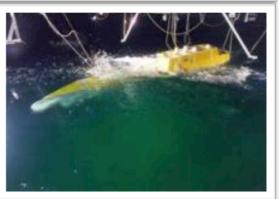


### Cradle to Grave Support

- Hydrodynamics, Ship Control and Propulsors
- Survivability/Shock, Materials, Structures and **Environmental Systems**
- **Signatures and Silencing Systems**
- **Electric Power & Propulsion, Auxiliaries,** Machinery Controls and Networks, and Sail **Systems**
- **Cost Engineering**
- Talented people and world class facilities
- Center of Excellence for hull, mechanical and electrical systems

Providing technical solutions for today's Navy and the Navy of Tomorrow







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### West Bethesda Unique Facilities



Carderock

Maneuvering and Seakeeping Facility (MASK)

Electromagnetic Facility

Maritime Technology Information Center

